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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------|------------------------|
| 10/816,095 | 04/01/2004 | Dominic A. Cataldo | BGT 2-007 | 9481 |
| 266 7590 06/11/2007 MUELLER AND SMITH, LPA MUELLER-SMITH BUILDING 7700 RIVERS EDGE DRIVE COLUMBUS, OH 43235 | | | EXAMINER LEVY, NEIL S | |
| | | | ART UNIT 1615 | PAPER NUMBER |
| | | | MAIL DATE 06/11/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/816,095 | Applicant(s) CATALDO ET AL. | |
| | Examiner NEIL LEVY | Art Unit 1615 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14, 15, 17-20 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 15, 17-20 and 39-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1615

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claim 1-3, 14, 18, 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

SAID nanoclay" has no antecedent nanoclay in (b) of claim 1.

Claim 3 is confusing-which comes first-claim 2 process, or that of 3, or does it not matter?

In claim 14, please spell out EPDM.

Claim 18 now expands, rather than limits, claim 1 (Tactoid clay) and no solvents are already at 1. Likewise with claim 41.

Claims 1--12, 14, 15, 17-20, 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over OHNO et al 5876738 in view of BEALL et al 5730996 and TON-THAT et al US 2005/019490.

OHNO, of record, uses the instant nanoclays, montmorillonite, bentonite (column 2, bottom) to incorporate antifungals (column 2) in a liquid state (column 3, lines 60-65) as in the instant invention, and then incorporated into the instant polyolefin's, polyurethane forming the instant barrier for control of targeted living fungal species (column 7, lines 29-53). Intercalation with ammonia ion chemicals was not done.

BEALL (col 11, top) also utilizes the same pesticidal intercalated nano-clays, (col 10, lines 37-39) ammonium functionalized water-soluble polymers (col 11, lines 3-22; col 16, lines 6-8, 27-32) are acceptable intercalate polymers. Beall explains that intercalation by introduction of ammoniated compounds was well known (col. 1,2), but exfoliation is enhanced with aqueous solutions of the intercalant/Pesticides. BEALL shows pesticides include not only the triademefon (col 19) fungicides of OHNO, but also the instantly claimed insecticides, cypermethrin, isofenphos, fenvalerate, permethrin, pyrethrins (pyrethrum) endosulfan and organophosphate type insecticides (col 21). Although bifenthrin is unmentioned, it would be obvious that one in the art of insecticide use would be able to substitute any of the pyrethroids, given the variety of them disclosed herein.

The instant size and aspect ratio are seen as met (col 3, lines 8-55; col 8, lines 5-34) as the platelets of montmorillonite are those of the instant invention. BEALL uses mixtures of pesticides (claim 1 of Beall). Although BEALL favors aqueous solutions, TON-THAT shows that bentonite [0031] so intercalated provides improved stability [0003] and shows the instant ammonium compounds used to prepare nanoclays [0033] useful in the instant polymeric barriers [0016] [0036].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made desiring to utilize pest control means, to use any of art recognized means, as of the OHNO nano-clays modified as desired to increase stability, dispersibility, compatability of ingredients, processing ease, reduced toxicity to handlers.

All the critical elements of the instant are disclosed. The amounts and proportions of each ingredient are result effective parameters chosen to obtain the desired effects. It would be obvious to vary the form of each ingredient to optimize the effect desired, depending upon the particular species and application method of interest, reduction of toxicity, cost minimization, enhanced, and prolonged, or synergistic effects, & stabilization of components.

Applicant has not provided any objective evidence of nonobvious or unexpected results that the administration of the particular ingredients' or concentrations provides any greater or different level of prior art expectation as claimed, and the use of ingredient for the functionality for which they are known to be used is not basis for patentability.

Response to Arguments

Applicant's arguments filed 4/27/07 have been fully considered but they are not persuasive. Applicant's arguments, & declaration, are seen as overcoming the rejection of record over the claims as now amended. However, examiner finds the lack of water added to the prior art compositions an option of the artisan; enhanced stability of the

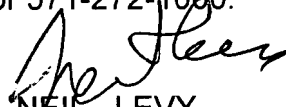
Art Unit: 1615

nanoclay preparations, with enhanced function in the long term as of the instant polymeric barrier compositions would follow the incorporation of an ammonium intercalant of the Ohno clays, & as Ton-That teaches, without water or solvent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NEIL LEVY whose telephone number is 571-272-0619. The examiner can normally be reached on Tuesday-Friday, 7 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL WOODWARD can be reached on 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


NEIL LEVY
Primary Examiner
Art Unit 1615